

What is claimed is:

1. A chemical-amplification positive-working photoresist composition which comprises, as a uniform solution in an organic solvent:

(A) a polyhydroxystyrene-based resinous ingredient of which the hydroxyl groups are partly substituted by acid-dissociable substituent groups capable of being dissociated by interacting with an acid; and

(B) a radiation-sensitive acid-generating compound capable of releasing an acid by irradiation with a radiation, the resinous ingredient as the component (A) being a combination comprising

(A1) a first polyhydroxystyrene resin substituted for a part of the hydroxyl groups by acid-dissociable substituent groups and

(A2) a second polyhydroxy-styrene resin substituted for a part of the hydroxyl groups by acid-dissociable substituent groups which are the same as in the first polyhydroxystyrene resin (A1), of which the degree of substitution by the substituent groups for a part of the hydroxyl groups in the first polyhydroxystyrene resin (A1) is larger than the degree of substitution in the second polyhydroxystyrene resin (A2) with the proviso that the ratio of the maximum weight-average molecular weight Mw_{max} to the minimum weight-average molecular weight Mw_{min} in the first and second polyhydroxystyrene resins (A1) and (A2) is smaller than 1.5.

2. The chemical-amplification positive-working photoresist composition as claimed in claim 1 in which the overall degree of substitution in the resinous ingredient as the component (A) for a part of the hydroxyl groups by the acid-dissociable substituent groups is in the range from 5 to 60%.

3. The chemical-amplification positive-working photoresist composition as claimed in claim 1 in which the acid-dissociable

substituent group is selected from the group consisting of tertiary alkoxy carbonyl groups, tertiary alkyl groups, alkoxyalkyl groups and cyclic ether groups.

4. The chemical-amplification positive-working photoresist composition as claimed in claim 3 in which the acid-dissociable substituent group is selected from the group consisting of tert-butoxycarbonyl group, tert-butyl group, tetrahydropyranyl group, tetrahydrofuranyl group, 1-ethoxyethyl group and 1-methoxypropyl group.

5. The chemical-amplification positive-working photoresist composition as claimed in claim 1 in which the polyhydroxystyrene-based resinous ingredient as the component (A) is a combination of (A1) a first polyhydroxystyrene resin substituted for from 30 to 60% of the hydroxyl groups by the acid-dissociable substituent groups and (A2) a second polyhydroxystyrene resin substituted for from 5 to 20% of the hydroxyl groups by the acid-dissociable substituent groups.

6. The chemical-amplification positive-working photoresist composition as claimed in claim 5 in which the polyhydroxystyrene-based resinous ingredient as the component (A) is a combination of the first and second polyhydroxystyrene resins (A1) and (A2) in a weight proportion in the range from 1:9 to 9:1.

7. The chemical-amplification positive-working photoresist composition as claimed in claim 5 in which the polyhydroxystyrene-based resinous ingredient as the component (A) is a combination of (A1) a first polyhydroxystyrene resin substituted for from 35 to 60% of the hydroxyl groups by the acid-dissociable substituent groups and (A2) a second polyhydroxystyrene resin substituted for from 5 to 15% of the hydroxyl groups by the acid-

dissociable substituent groups.

8. The chemical-amplification positive-working photoresist composition as claimed in claim 7 in which the polyhydroxystyrene-based resinous ingredient as the component (A) is a combination of the first and second polyhydroxystyrene resins (A1) and (A2) in a weight proportion in the range from 4:6 to 1:9.

9. The chemical-amplification positive-working photoresist composition as claimed in claim 5 in which the polyhydroxystyrene-based resinous ingredient as the component (A) is a combination of (A1) a first polyhydroxystyrene resin substituted for from 30 to 60% of the hydroxyl groups by tert-butoxycarbonyl groups and (A2) a second polyhydroxystyrene resin substituted for from 5 to 20% of the hydroxyl groups by tert-butoxycarbonyl groups.

10. The chemical-amplification positive-working photoresist composition as claimed in claim 1 in which the ratio of the maximum weight-average molecular weight Mw_{max} to the minimum weight-average molecular weight Mw_{min} in the first and second polyhydroxystyrene resins (A1) and (A2) is smaller than 1.3.